

ART. V.—*On the Climate and Salubrity of Fort Moultrie and Sullivan's Island, Charleston Harbour, S. C., with Incidental Remarks on the Yellow Fever of the City of Charleston.* By JOHN B. PORTER, M. D., Surgeon U. S. A. (Continued from p. 366.)

ENTERING the profession from a northern college, where yellow fever was unknown and the doctrine of Hosack had full sway, I was a believer in the contagiousness of the disease; but my first experience changed that opinion. The two principal reasons for the change were, that the disease could not possibly have been imported, and so spread by contagion; and that the physicians, attendants, &c. of the hospital, were remarkably exempt from the fever. Every subsequent epidemic has strengthened the opinion of its non-contagiousness, none more than that at Fort Moultrie and Sullivan's Island in 1852, so that, at the present time, I would as soon think of becoming an abolitionist as a contagionist.

"Dr. Louis Valentin, First Physician to the French Army at St. Domingo, 1803, is of opinion that the yellow fever is not contagious, as he never observed it to be communicated to the medical men who were engaged in the charge of the sick, and in examining their bodies after death; nor did the clothes and furniture that had been used about persons dead of the fever, though neither fired, washed, nor fumigated, communicate infection to others. Dr. Valentin attributes its origin wholly to local circumstances."—*London Med. and Chirurgical Review*, July, 1804, vol. xi. p. 238.

Dr. Ramsay says:—

"The uniform experience of the physicians of Charleston, since the year 1792, proves that it is neither one nor the other [imported and contagious]; for in no instance has a physician, nurse, or other attendant on persons labouring under this disease, caught it from them. Several, after taking it in Charleston, carried it with them and died in the country, yet it never spread nor was communicated to any one who attended on them. In every such case of mortality the disease and the subject of it expired together."

In the *Medical Repository* for 1803, vol. vi. p. 339, is the following passage in relation to the yellow fever in Boston, in 1802:—

"It was remarkable, that if a patient under the disease was carried out of the range of the morbid atmosphere into a healthy part of the town, and attended by persons there resident, the disease was not communicated in a single instance; but not so if he remained on the spot where he took the disease—they less rarely escaped. None of the physicians took the disease, for none resided within the infected atmosphere."

Dr. Rush says:—

"It does not spread in yellow fever hospitals, when they are situated beyond the influence of the impure air in which it is generated."

Dr. Ramsay, on the yellow fever of Charleston, in 1802, says that

"There was no ground to suppose it was either imported or contagious; that no physician, nurse, or other attendants on the sick, caught the disease, &c."

Dr. Lebby states to Dr. Strobel (see letter):—

"In August, 1827, three soldiers went from Fort Johnson to Charleston, during the existence of yellow fever, and remained over night; on the ninth day after, they were attacked with the disease, within a few hours of each other: they were not removed from their quarters; during the period of their sickness, ten or twelve men slept in the same room with them, who were unlike strangers to the climate; yet there were no other cases of disease in the garrison."

This is a strong case. The hospital at Fort Johnson was dilapidated and undergoing repairs, consequently it was not in condition to receive the sick, and it was necessary to convert the company quarters into a temporary hospital; in this temporary hospital there were "ten or twelve men alike strangers to the climate," yet there were no other cases of the disease. It cannot be supposed that ten or twelve men could have escaped if three others had been sick in the same room with smallpox, measles, or ship fever. It was not possible for these ten or twelve men to escape a contagious disease.

Another instance in Dr. Lebby's letter to Dr. Strobel, in September, 1838: The mate of one of the lighters slept one night in the city; on the fourth day he sickened, "and although he was among children at Sullivan's Island, and others who were liable to contract the disease, no other instance of it occurred in the family."

Here is the residence of a family converted into a temporary hospital; and is it possible that no one should contract a contagious disease? It is said that children are not liable to yellow fever, which is in a great measure true, thus proving, in connection with other facts, that the disease is not contagious; but there were "others who were liable to contract the disease," yet "no other instance of it occurred in the family." This seems to show that the fever is not contagious.

What contagion was there in the Fort Moultrie Hospital in 1852? It must be admitted that the physicians, stewards, attendants and nurses of a yellow fever hospital are especially liable to contract the disease if it is contagious. During this epidemic, the surgeon, steward, and four nurses, all continuously exposed for weeks together, had no kind of fever; three nurses and one cook had remittent fever in September, but nothing like yellow fever afterwards; and three nurses and one cook had yellow fever. Thus, we have 14 persons on duty in the hospital, of whom 6 had no kind of fever, 4 had remittent, and 4 had yellow fever. Throwing out the cooks, who were not so much exposed among the sick as the others, but were more exposed to heat in the exercise of their vocation, and we have 6 who had no fever, 3 with remittent, and 3 with yellow fever, and these 12 persons were exposed with the sick in an especial manner. We have, then, only 3 persons in 12 sick in a yellow fever hospital, a circumstance which seems incredible in a contagious disease. All these persons were on hard duty, which would predispose to the disease, yet three-fourths of them escaped. This would not seem possible with a really contagious disease, for instance, smallpox, measles, or even ship fever.

Having had much to say in a former paper in relation to the drunkenness and worthlessness of a portion of the command during the epidemic of 1852, it affords me great pleasure to bear testimony to the good conduct of the remainder, particularly those on duty in the hospital. The attendants on the sick in hospital were constantly on hard service during the day, and at night by detail, in all cases doing their duty with cheerfulness and alacrity, and I have repeatedly seen them carry the sick in their arms, in all stages of the fever, without flinching. If soldiers have some bad traits of character, they have also good ones, as I have had reason to know in several epidemics; the class of reliable men, however, must be carefully separated from the unreliable, in all cases, for duty in a military hospital. Importation and contagion, with their consequences, would paralyze any military hospital, and will create panic among the best troops in the world; and conscientiously believing that yellow fever is not contagious, I took special pains on all occasions to eradicate the pernicious doctrine, emphatically declaring at all times and in the most public manner, that the disease is never "catching" or contagious. On no account can such doctrines, discouraging to both sick and well, be tolerated in a military hospital, especially when we consider them to be false doctrines.<sup>1</sup>

Numerous instances might be cited in yellow fever hospitals, where physicians, nurses, and all persons on duty, were remarkably exempt from fever.

How is it with ship fever, the real typhus? Do the physicians, nurses, and attendants of all sorts, escape in these fever hospitals, particularly those in the vicinity of the city of New York, so universally as in the yellow fever hospitals? On the contrary, all these persons are so commonly attacked, and so many have died, including eminent physicians, that it is difficult to resist the conviction of its being a contagious disease.

We know that it is common to say—"there are exceptions;" that "every one is not susceptible to smallpox;" that "persons escape it just as in yellow fever;" &c.; but what proportion of those who have not had smallpox may be expected to escape, and do actually escape? Dr. Gregory says, in relation to susceptibility:—

"All mankind, with few exceptions, are born with a susceptibility of smallpox. This susceptibility, unless altered by vaccination, remains, for the most part, equally strong at all ages." Again: "A few persons pass through life apparently insensible to the variolous virus, whether exposed to it casually or by the mode of inoculation. These cases are exceedingly rare."

It is not so with yellow fever, scores and hundreds in our cities escaping in epidemic seasons, and those who have been exposed in all ways, as physicians,

<sup>1</sup> Every one knows the history of Napoleon, and his entry into the plague hospitals of Egypt and Syria, by which net he showed the philosopher and the man of sense. It is said that one of our generals during the Mexican war, when nearing Vera Cruz, applied to his mouth sponge moistened with vinegar, in order to keep off the contagion of yellow fever. It is clear that our hero was not a Napoleon.

hospital attendants, &c. Again, children and those born and raised in a place where yellow fever is endemic rarely have the disease; but it is not so with smallpox; all are liable to it, in all circumstances, in all climates, and at all ages, from the cradle to the grave.

There is great difference in the recurrence. Those who have had yellow fever are not considered so liable to it as before, but a recurrence is common, and an absence of two or three years in a cold climate renders a return to a fever region hazardous; but not so with smallpox, for a person who has once had it may consider himself safe from all future attacks for the rest of his life, in all situations, as well at the equator as in the frigid zones. On this subject Dr. Gregory remarks:—

“The rarity of such cases may be inferred from the fact that no instances are recorded of persons being received twice into the smallpox hospital; and the instances of alleged smallpox, admitted in that institution have been very few. Some physicians of the last century could with difficulty be persuaded that such ever occurred. Heberden estimated them at 1 in 10,000; other writers at 1 in 8,000, or 1 in 50,000.”

Yellow fever ceases, is annihilated, by the occurrence of frost, like all malarious fevers. No contagious disease is affected in this way by the occurrence of cold weather. Smallpox, measles, Irish typhus, and the typhoid fever of New England, allowing the last two to be contagious fevers, are not rendered milder by frost; none of them are checked by cold weather, and the most of them are aggravated by winter.

Yellow fever does not spread by contagion when carried from one city to the country. This is a well known and established fact, one which has been acknowledged for many years, even by Dr. Lining himself. Dr. Sheut says that—

“The fever which it (the combination of marsh miasmata and animal effluvia) generates in the system, is confined to its own limits, and has never extended to half a mile beyond the limits of the city in which it originated. Of this fact, Sir Nathaniel Johnson appeared to have been apprised, even at the earliest period of the yellow fever. Mr. Hewitt tells us, that while the fever raged in Charleston, in the year 1703, the governor held his headquarters *about half a mile distance from the town*, not wishing to expose his men to the dangerous infection, unless from necessity; nor do we find that any of his army received the infection, either from the air or from contact, by their communicating with the garrison, in their necessary intercourse with each other.”—P. 96-97.

A better instance occurred more than one hundred years after the encampment of Sir Nathaniel Johnson. Malignant yellow fever raged with great violence in the city of New York, in 1822, and every one who was able fled to the country. Dr. John B. Beck gives the following account:—

“There were a large number of persons who, after having contracted the seeds of the disease in the city, had the disease developed in them after their removal into different and distant parts of the country. There occurred about thirty-six cases of this sort, and at the following places, viz: three at Newark, N. J.; one at Harlem; three in the city of Jersey; one at Tappan, N. Y.; six at Bloomingdale; one at Albany; three at Middletown-point, N. J.; four in different parts of New Jersey; one at Newtown, L. I.; one at New Canaan, Conn.; two at Amboy, N. J.; one at Hempstead, L. I.; one at West Chester;

one nt Bloomfield, N. J.; one nt Sangatnek, Conn.; two at Bushwick, L. I.; two at Elizabethtown, N. J.; and one nt Boston. Of this number there were twenty-seven deaths. From the very extraordinary proportion of deaths among these cases, it is evident that they must have been very decided and malignant in their character, and yet not in a single instance was the disease communicated." In relation to the case nt Boston: "The patient lodged at one of the largest hotels in that place, filled nt the time with persons from all parts of the country, and there sickened and died of yellow fever; and although he was constantly watched and attended in a small and badly ventilated apartment, no one was in the slightest degree affected by his sickness."

We see that cases of yellow fever were scattered over the country, sufficiently malignant to produce a mortality of 75 per cent., yet not a single person was in the slightest degree affected.

Again, Dr. Beck says that—

"Upwards of one hundred persons, sick of yellow fever, lay in different parts of the country, without in a single instance, communicating the disease. That one hundred, sick of a disease highly malignant and contagious, located in different parts of the country, should not, even in a solitary instance, have communicated it to a second person, seems to us literally impossible."

The instances related by Dr. Beck seem of themselves sufficient to convince us that yellow fever is not a contagious disease.

We will suppose a contagious yellow fever. A person leaves New York where yellow fever is rife, as related by Dr. Beck, and becomes a member of a family in the country. Soon after his arrival he is attacked with malignant yellow fever, and dies, having had black vomit. The family in which he was residing have very kindly nursed him, and all are taken with the disease in rapid succession, and there was no one able to care for the sick; but in a civilized and Christian country the sick must not be allowed to suffer, and several of the neighbouring families band together to assist this one sick and suffering family; in a short time cases of yellow fever break out in all these charitable families, and so the disease spreads until frost occurs. But why should frost check it? kill it? for no contagious disease dies out in this way when the thermometer falls to 32°. The fever should continue to spread in concentric circles, *transmitted*, if you please, until a vast extent of country is ravaged, nothing stopping it except strict quarantine, a perfect non-intercourse, leaving the sick to take care of themselves, and the "dead to bury their dead," for such is the practical effect of the doctrine of contagion. This is what I would call contagious yellow fever; thank heaven no such fever has ever appeared in this country.

Complete isolation is no protection from yellow fever in an epidemic season. The Misses B——, maiden ladies, related the following case in their family, in 1838:—

"Resided in St. Mary's Street, near Cooper River, Charleston Neck; had the young daughter of a country friend, 13 or 14 years of age, with them, who had not been from the house and yard (detached from other dwellings) for six weeks, and had seen no sick person; she was taken with yellow fever, had black vomit, and died."

If yellow fever is never engendered in Charleston, as has been recently

asserted, and is contagious, how came this young and interesting girl to have it? and why did not the two ladies, who were with her at all times, contract it? See the case of the head master of the grammar school, related by Dr. Ramsay; the cases in the New York and Richmond (Va.) penitentiaries; and the case of Norris, in Augusta jail, 1839, given by Dr. Robertson. These cases, with numerous others, serve to confirm the conclusion in the Second Report of the General Board of Health of England on Quarantine in Yellow Fever: "That when yellow fever is prevalent in a locality, the most rigid seclusion in that locality affords no protection from the disease."

December 1, 1853. Dr. Hume propounds the following questions to the Charleston Medical Society:—

"1. Have you reason to know or believe that the yellow fever of Charleston is always of domestic origin, from sources engendered in the city?" Negatively.

"2. Have you reason to know or believe that it is over of foreign importation?" Negatively.

"3. Have you reason to know or believe that it is over of domestic origin?" Affirmed.

"4. Have you reason to know or believe that the fever is ever the result of a foreign importation, grafted on the impure air of the city?" Affirmed.

"5. Is it the sense of the Society, that quarantine regulations should be enforced to aid in preventing the introduction of yellow fever, in conjunction with strict Hygienic precautions?" Affirmed.

Then comes the Report of the City Council, December 20, 1853, in which Dr. Hume says:—

"We are fully aware that, on this point, we now have the full sanction of the Medical Society of South Carolina,<sup>1</sup> which has been hitherto withheld, and they now abjure the dangerous doctrine, that the rigid enforcement of the quarantine laws was by no means necessary on account of yellow fever."

If the Medical Society has "abandoned the conclusions," there is still room for inquiry, for questions of this kind cannot be settled by a vote of the majority *ex cathedra*. In the minority there may be physicians, having talents, intelligence, learning, experience, and reputation, who are still disposed to continue their investigations, although the Medical Society may have "abandoned the conclusions." The decisions of a society are as liable to be wrong as were the conclusions of their predecessors, particularly as men and measures change; but we regret the expression of the idea—"we rejoice that we never will learn from what observations and facts these results were drawn," for we had always considered the recorded "observations and facts" of astronomers, navigators, and all professors of science, all learned men, those of the law, medicine, theology, &c., as invaluable; and our Saviour "healed the sick, cleansed the leper, and cast out devils"—facts which have been registered for the benefit of the whole human family. Whatever may be the consequences, let facts and observations be sought out and recorded in the most careful manner.

<sup>1</sup> What I have called the Charleston Medical Society is styled the Medical Society of South Carolina, but when the Society was founded, in 1789, Charleston was the State; the Society has always been, in fact, the Medical Society of Charleston. The State Medical Society is termed the South Carolina Medical Association.

We will briefly review the epidemic yellow fever of Charleston; and as Dr. Hume's Report is exceedingly meagre, whole epidemics being omitted, we will have recourse to the writings of Drs. Ramsay, Wilson, Shecut, Joseph Johnson, Simons, and others, to supply the deficiencies.

About twenty years after the settlement of the town on its present site, in 1699 or 1700, yellow fever broke out; and it is remarkable, as stated by Dr. Ramsay, that a desolating fire preceded this calamity. "Never had the colony been visited with such general distress and mortality; some whole families were carried off, and few escaped a share of the public calamities." It was an epidemic year, for in addition to the other misfortunes, a "fatal epidemic of smallpox" carried off great numbers.

1703. Dr. Hewatt states that an

"Epidemic distemper raged at Charleston, which swept off a vast number of the inhabitants; and the town being threatened by the French and Spaniards, the governor removed his head-quarters about half a mile out of town, 'not wishing to expose his men to the dangerous infection unless from necessity.'"

1728. "The summer was uncommonly hot, the face of the earth entirely parched, the pools of standing water dried up, the beasts of the field were reduced to the greatest distress, and an infectious and pestilential distemper, commonly called the *yellow fever*, broke out in town and swept off multitudes of the inhabitants, both white and black." We are informed that the fear of "catching the infection" was great; fresh provisions could not be procured from the country; "the physicians knew not how to treat the uncommon disorder, few could assist their distressed neighbours, and there were so many sick that scarcely white persons enough could be found to assist in burying the dead."

1732. "Yellow fever began to rage in May, and continued till September or October. In the height of the disorder there were from eight to twelve whites buried in a day, besides people of colour. The ringing of bells was forbidden, and little or no business was done."

1739. "The yellow fever raged nearly as violently as in the year 1732. It was observed to fall most severely on Europeans."

1745. "It returned, but with less violence; however, many young people, mostly Europeans, died of it."

1748. Nearly the same remarks as for 1745.

1753. "It appeared again in a few cases, but did not spread."

1755. Same remarks as in 1753. Dr. Ramsay states that from 1732 to 1755, his information was derived from the manuscripts of the late venerable Smael Prioleau: *Hist. S. C.*, vol. ii. p. 84.

It has been usual to make three eras in the history of yellow fever in Charleston. The first extends from 1699 to 1748, the second from 1792 to 1807, and the third from 1817 to the present time.

"For forty-four years after 1748," says Dr. Ramsay, "there was no epidemic attack of this disease, though there were occasionally in different summers a few sporadic cases of it. In the year 1792, a new era of the yellow fever commenced. It raged in Charleston in that year, and in 1794, 1795, 1796, 1797, 1799, 1800, 1801, 1802, 1804, and 1807. It appeared slightly in the years 1803 and 1805. In both years its victims did not exceed 50. In the years 1793, 1798, and 1808, the disease is not mentioned at all, and in the year 1806 it is only mentioned as having occurred in a very few cases under particular circumstances. The unseasoned negroes were not exempt from its ravages, but they escaped oftener than other strangers; and, when attacked, had the disease in a

slighter degree, and if properly treated were more generally cured. In the years 1796 and 1799, it raged with its greatest violence, but has since considerably abated, both in frequency and violence. This abatement is partly owing to the diminished number of strangers, for strangers have been cautious of residing in or even visiting Charleston in the warm months. It is also to be in part ascribed to a more judicious treatment of the disease. Nevertheless, there is reason to believe that a real abatement has taken place. Nor is this uncommon, for diseases, like other natural phenomena, come and go. Such has been the history of the yellow fever in Charleston from its settlement to the present time. Solitary cases originated in the country, but they were few in number and not often repeated."

It is often asserted, as by Dr. Hume, that yellow fever, unless imported and propagated by specific contagion, should occur every year, the local and general causes being always present; but neither did the sporadic or endemic cases of the disease, mentioned by Dr. Ramsay as occurring in several of the years in which there was no epidemic, kindle into an epidemic, though many of the essential causes might be present; and we account for the presence of malignant fever at irregular intervals with Dr. R., that "diseases, like other natural phenomena, come and go," the epidemic causes being superadded to the endemic ones at irregular intervals. So it is with influenza and dysentery.

1792. It is seen that yellow fever raged in Charleston this year, though the Bulam fever had not yet been imported from Africa to Grenada, for the ship Hankey did not arrive at this island until the next year, 1793; and both Dr. Chisholm and Sir W. Pym state that the ordinary yellow fever of the West Indies is not contagious.

1794. Dr. Rush says that

"The disease was common in Charleston, where it carried off many people, and where no suspicion was entertained of its being of West Indian origin."

Dr. Joseph Johnson says:—

"The yellow fever appeared in 1794, and in several years successively, generally making its first attack within a fortnight after heavy rains, if succeeded by hot weather and light west and southwest winds, not sufficient to refresh the atmosphere by dispersing the exhalations, and not even carrying off the perspiration. It generally prevailed in boarding-houses, many of them filthy, filled with seamen and intemperate persons; and the very first case of black vomit was in a house of this kind in the year 1794, on what is now Boyce's wharf."

1796. Dr. Rush says:—

"The yellow fever prevailed this year in Charleston, where it was produced by putrid exhalations from the cellars of houses which had been lately burnt. It was said by the physicians of that place not to be contagious."

Here is another remarkable instance of yellow fever after a sweeping fire. Dr. Joseph Johnson mentions the extensive fires of different years as a pre-eminent cause of yellow fever:—

"The first instance of this kind was after the devastating fire which broke out in the evening of the 13th June, 1796, extending from Lodge Alley, near East Bay, to the corner of Broad and Meeting Streets, on which the City Hall now stands. The summers of 1796 and 1797, were terribly marked by the prevalence of yellow fever in Charleston."



1797. The yellow fever of this year was severe. (See the preceding remarks of Dr. Johnson, the cause being the same as in 1796.)

1799. We will draw largely from Dr. Ramsay's Address to the Medical Society, December 24, 1799.

The summer had not been very hot; there were no more than three days in which the mercury rose above 88°. On the hottest day, July 19, the mercury rose to 91°. June 14, and July 15, it reached 89°. Coldest day in the year, January 7, when the mercury fell to 23°; in November it fell to 30°. First frost, November 13. Rain during the year, "rather more than 75 inches." The last months of the year uncommonly wet. September 25, more than 8 inches of rain fell; and "in the months of August, September, and October, there fell upwards of 35 inches."

"One solitary case (of yellow fever) in the month of May, a person thirty days from Havana." In the month of June, some sailors from a Spanish vessel had the disease, and "in the month of July, some other seafaring persons." About the "middle of August it became epidemic." Mortality, 239.

"We have no reason to believe that the yellow fever was imported among us, or communicated by contagion. It raged most in the north end of King Street, where the greatest number of persons from the country resided, and in those streets where seafaring persons usually fixed themselves.

"No physician nor nurse took the disease. Strangers who left the city, and afterwards sickened and died in the country, were not the occasion of death, or even of disease, to those who attended them in their last illness.

"Our knowledge of this fever is very limited. It appears that there is a certain something in the air of Charleston that is comparatively harmless to the inhabitants, but the source of disease and death to the stranger. What is that something?

"The yellow fever is eminently the disease of cities. Where multitudes are crowded together, the dissolution and putrefaction of every animal that dies, and the breath of every animal that lives, tend to contaminate the air. By habit we may accustom ourselves to take poison in small doses, without any deleterious effects. The inhabitants of a city may, without particular injury, inhale a tainted atmosphere that would, in certain seasons, be fatal to strangers, used to the purer air of the sea or country, especially of a colder latitude."

Dr. Ramsay notices the suffering from water in the cellars:—

"It is true, orders were issued to empty the cellars, after they were filled with water. That is, when the nuisance became intolerable to the inhabitant, he was directed to disperse it among his neighbours." And he recommended that power should be used, "to compel housekeepers, in a summary way, to keep their cellars, their stables, their privies, and their yards, wholesome and clean."

The remainder of the Address is in relation to wide streets and narrow ones, confined lanes, dirty alleys, subdividing lots, and crowding houses together, so as to prevent free ventilation, opening and cleansing the present drains, increasing their number, and in removing every accumulation of filth. The Address is worthy of the great historian of South Carolina.

1800. Dr. Ramsay wrote to Dr. Miller, of New York; the fever was not so bad this year as in the last, there being but 184 deaths.

"The disputes about the origin of the yellow fever, which have agitated the Northern States, have never existed in Charleston. There is but one opinion

among the physicians and inhabitants, and that is, that the disease was neither imported nor contagious.

"I have nothing new to communicate on our mode of treating this disease. Under the most approved methods, and the ablest physicians, when clearly marked, it has in most cases proved fatal. Many of our yellow fever patients are in circumstances unfavourable to their recovery. Such is the rapid and violent nature of the disease, that they should have free ventilation, and several attendants by night as well as by day; but they are mostly unknown strangers, and often in crowded lodging-houses, in the most thickly settled parts of the city, where the apartments are small and the servants few.

"In one case, the disease proved fatal to a gentleman on Sullivan's Island, who had not been off the island for six weeks before; in another, to the head master in the College Grammar-School, who had confined himself to the yard and vicinity thereof, from and after the first of July.

"My private opinion is, that our yellow fever is a local disease, originating in the air of Charleston; that the chances of escaping it may be considerably enlarged in favour of strangers residing in the city, who avoid the night air and all excesses; live prudently, and in clean, airy apartments; and observe a medium between living too high and too low; and that the disease might be generally avoided by such, provided they kept entirely out of the city, or even in the sparse settlements in its outskirts. And, on the other hand, that the most transient visit to, or passage through Charleston, when the yellow fever is prevalent therein, may as certainly and as fatally induce that disease as a more permanent residence."

1802. The fever this year was less severe; 96 deaths. From Dr. Ramsay we learn that

"There was no ground to suppose it was either imported or contagious; that no physician, nurse, or other attendants on the sick, caught the disease; and that among the strangers who were so susceptible of the disease, there was no evidence of its being communicated from one to another."—*Med. Repository*, vol. vi. p. 335.

1804. 148 deaths. "A few cases of yellow fever occurred prior to the 10th of July, but from that day till about the 20th of September, it might be said to be epidemic. From and after that time it gradually declined, and finally disappeared about the first of November.

"The weather was uncommonly warm while the epidemic raged, and the number and mortality of its subjects increased with the increase of the heat.

"Neglected intermittents frequently terminated in the yellow fever. The black vomit was neither violent nor constant, even in fatal cases, when the depleting system was carried to a proper extent. Several cases of clearly-marked yellow fever terminated in low nervous fevers, which ran on to a period of two or three weeks, and in different cases with opposite results. The disease bore tonic medicines better and earlier than in the preceding years. Blisters were uncommonly useful, and when applied freely and judiciously, saved several lives.

"About one-fourth of the strangers among us escaped the disease, and more than one-half of those who took it got safely over it. This disease, in no instance proved contagious. Neither physicians nor nurses, attending the sick, were attacked with it."—Dr. Ramsay to Dr. Mitchell, *Med. Repository*, vol. viii. pp. 365-366.

1807. "About the middle of August the yellow fever commenced, though that and the preceding months had been unusually healthy.

"The unseasoned negroes were not wholly exempt from its ravages; some who had taken it retired to the adjacent country, but others to Sullivan's Island.

"In both cases, whether they lived or died, the disease terminated with them, and was in no instance propagated from them. I mention this circumstance with pleasure, as it will assist in confirming your learned and judicious observations on the absurdity of quarantine laws. I most heartily wish you success

in your endeavours to illuminate the public mind on that misconceived subject, and to rescue the nineteenth century from the reproach of continuing useless laws, founded in the ignorance and error of a comparatively unenlightened period."—Dr. Ramsay to Dr. Mitchell, *Med. Repository*, vol. xi. pp. 233-236.

Dr. Joseph Johnson, President of the Medical Society, delivered an Address to the Society, December 24, 1807, from which we extract.

The winter previous was very severe. "Occasional showers alone prevented the occurrence of ice on every night in January, except the last." February was a very cold month, and "the changes in February and March were very great and sudden." Both months were very wet; in the first there fell 7.30 inches of rain, and 6.05 inches in March. "The spring was unusually cold and backward; as late as the 3d of May there was a frost."

"The spring having been so backward, the accession of summer was rapid in proportion, and the 11th of June was one of the hottest days to which our climate is subject; the thermometer standing at 92° in a very cool situation, and at 94°, generally, through the city. The average heat of July was 86°; a range considerably higher than had been observed since 1796; and somewhat exceeding the great heat of that year. From the 26th of July to the 18th of August, there had been but one shower; the heat being steady and considerable, the *endemic* *causus* commenced about the latter date, and was aggravated by the extremely hot weather from the first to the fifth of September, when the thermometer, at noon, in the coolest situation, varied from 90° to 92.5°. September was, from sickness and death, the blackest month ever recorded in Charleston, there having been 328 interments; of which 114 were from *endemic* *causes*; and at least one-fourth of the inhabitants were affected with the *influenza* about the last of the month. From the 2d of October to the 5th of November, there had been no rain, and on the twenty-one days preceding, there had fallen only 0.15 inch. During the first six weeks of this time, the weather was clear, and generally calm; but when the winds did increase, the inhabitants were distressed still more by the clouds of dust which drifted in every direction; the winds, fortunately, prevailed from the east, so that the heat was not oppressive. All the ponds, and many of the wells and springs were dry, so that in country places many cattle died for want of water, and travellers could not obtain a sufficiency, near the roads, for themselves or their horses. The atmosphere was hazy and thick, as if filled with a subtle dust, and the sun, as if deprived of its rays, appeared of a fiery redness. On the 20th of October the weather became cool, and a frost took place within two miles of the city, which being occasionally succeeded by others, the atmosphere was cleared, and the effects of the drought were not so oppressive. It may, however, be said to continue even at this time (December 24), for from the 11th of September to the 21st instant, a term of three months and ten days, there had fallen only 1.40 inch of rain.

"If all human strength, supported by medical skill, cannot avail against the furious attack of this monster, may not enterprise, conducted by observation and reason, prevent its origin. Observation points to the drains and other receptacles of filth, and reservoirs of stagnant water, as the sources of its being. Reason convinces us, that if these receptacles of filth were daily cleansed of their putrefying contents, so as to prevent exhalation, this hydra could not exist. Enterprise, confirmed by experience, assures us that water may be conducted through our streets, so as not only to remove the fermenting matter from the drains, but answer many other valuable purposes."

Both Drs. Johnson and Ramsay give a graphic description of the distress occasioned by the epidemic *influenza*. Our limits permit only a short extract from the former:—

"*Influenza* is noticed as occurring in March and April, although not sanc-

tioned by our journals.<sup>1</sup> My opinion was then supported by the concurrence of several eminent physicians, and has since been confirmed by a correspondence of symptoms with that which prevailed in the fall. On the first of its appearance, in the latter period, the symptoms were so mild that few required the attendance of a physician. This lulled many into a fatal security.

"So general was the prevalence of this disease about the middle of October, that many families had from fifteen to twenty sick at one time; servants could not be hired to do the duties of a family, nor nurses to attend the sick. Relapses were very frequent."—*Med. Repository*, vol. xi. pp. 402-407.

1809. Dr. Samuel Wilson writes to Dr. Mitebell, August 31:—

"Our city has been unusually healthy until lately, owing to the late uncommon fall of rain; for since the first of last month, 22 inches of rain have fallen, which is almost half as much as falls in a year, taking the average of 15 years past. This I can assure you is a fact, as my father keeps an accurate account of the weather, and has done so ever since the institution of the Medical Society in this place; and as the vessel was imported from England, the quantity has been regularly ascertained. From the great fall of rain, we have had a remarkably temperate summer as yet, and were flattering ourselves with the hopes of an exemption from the yellow fever, but this has unfortunately not been the case, for about eight cases have occurred among strangers, and, as is usually the case, the whole have terminated fatally, for I do assure you that very few recover, generally; especially such as are seafaring people, who are seldom taken to the Marine Hospital till the third day from the attack; at least this has been the case this season; and I believe, with one or two exceptions, the disease has been confined to this class of people. As to the origin of the disease, there prevails but one sentiment, and that is of its being engendered here; no better proofs of which can be given than the circumstance of its being confined exclusively to strangers, and the sudden disappearance of it when the cold weather sets in."—*Med. Repository*, vol. xiii. pp. 200-201.

This is all we find in relation to the fever of 1809, except that "on the 6th of October the Governor of New York, by proclamation, directed the quarantine laws to be enforced against vessels and persons arriving from Charleston."

1811. Dr. Joseph Johnson, speaking of devastating fires as a cause of fever in Charleston, and the "terribly marked prevalence of yellow fever" in 1796 and 1797 in consequence, says:—

"So was the summer of 1811, subsequent to that fire which commenced on the evening of the 9th of October, 1810, back of St. Phillip's Church, which extended on both sides of what is now State Street, to Broad Street and East Bay."

These are the facts and observations which Dr. Hume wishes to suppress. These are a portion of the facts and observations from which the "results were drawn" by the eminent men of the profession, which Dr. Hume deprecates, and which he says the Medical Society has abandoned; and the doctor "rejoices to believe that we never will learn" from what the results were derived. This is truly liberal for the nineteenth century.

We have finished the two first periods in the History of the Charleston yellow fever, extending from 1699 to 1807, 1809, and 1811. During the first period, from 1699 to 1748, the facts and observations are not so full as in the second; nevertheless, those which have been preserved by Lining, Hewatt, Chalmers, John Moultrie, and others, are important. Dr. Lining

<sup>1</sup> City epidemics are never "sanctioned" by the city journals."

believed in the contagiousness of the disease, but he distinctly admits that it could not be spread in the country by the sick carrying the fever from the city, "not even so much as to one in the same house;" and he could have known nothing of the first three epidemics, in 1699, 1703, and 1728, as he was not in the country; nor does he give a single instance of importation from the West Indies, or any other part of the world. Indeed, how could the disease be imported from the West Indies to Charleston at this early period, when Dr. Chisholm and Sir William Pym declare that contagious yellow fever was first imported into Grenada from Bulam, in Africa, in the year 1793, and that the fever of West Indian origin is not contagious?

The first two or three epidemics in Charleston could not have been imported from the West Indies, for there was no foreign trade, the infant colony being satisfied, according to George Chalmers, during the first years of its existence, to have a precarious intercourse with the lords proprietors in England.

Whoever examines the writings of Dr. Ramsay, and the old maps of Charleston, will find that the site of the new town was cut up by creeks and covered by marshes; and from the necessary general condition of the new settlement in this hot climate, it is not half so surprising that yellow fever should be engendered here, as that it should occur at the settlement of old Massachusetts colony, with its rock-bound coast and raw climate.

According to Dr. Hume, "Charleston is beyond the northern limit of *self-generating* epidemic yellow fever," though he admits that "Charleston does occasionally produce sporadic cases of fever of domestic origin, but they do not extend or infect localities." They ought to do both, if yellow fever is a contagious disease, just as sporadic cases of measles and smallpox "extend and infect localities." The term *self-generating* is objectionable; but if Dr. Hume intends to say that Charleston is too far north to ever have yellow fever produced by causes within itself, independent of importation and contagion, and that it cannot exist unless imported and spread by contagion, then we understand the meaning of the term, and wholly dissent from the opinion. This disease was certainly produced, in Charleston, by local causes in 1852, as it was indubitably produced on Sullivan's Island by similar causes in the same year.

Yellow fever has been produced by local causes far north of Charleston. It broke out in the most decided manner among the convicts of the New York State Prison, in 1805, in a "situation entirely inaccessible to imported contagion." (See Drs. Walker and Quackenbos, *Med. Repos.* vol. x. pp. 58-61.) The disease originated from local causes in the Richmond Penitentiary, Va., in 1806. We have room for only an extract or two; for the remainder, see *Med. Repos.* vol. x. pp. 215-218.

"Where is there a fact more conclusive as to the origin of yellow fever, because so little confused by the operation of contrary causes? It would almost be a miracle had the *imported germ* of the yellow fever visited the penitentiary. Here are a set of men almost completely cooped up from the rest of the world. The turnkeys, the respectable superintendent, his whole family, are healthy.

The guard, who traverse the outside of the building, are too far remote to communicate the contagion. Few persons have access into the building; no one can enter it without a permit from two inspectors; no one who has visited it lately has exhibited symptoms of the fever. The building is too completely cut off from the city to receive the noxious contagion in a tainted stream of air. And whence was this stream to blow? There is not a single corner in the city where the fever has peeped forth—not one person who has fallen beneath it.

"There seems not a deficient link in this chain of proof; everything is complete—everything conclusive. It is scarcely possible that the fever could approach from without; it must, therefore, have been generated from within. But here are sufficient causes for its production: desponding minds; the want of exercise; the want of something to exhilarate the spirits, and put the torpid functions into motion; the damp weather succeeding to a season of unexampled drought; the long train of inconveniences, inseparable from a state of confinement and labour. When causes like these exist, why seek for its origin in the West India market, whence no infected vessel has arrived; or in a city not yet visited by a single symptom?

"That the fever of the penitentiary is the yellow fever of our cities is decided by the two experienced and ingenious physicians who have attended it.

"The best established opinion is, that the fever is not in the least degree infectious; that it rather passes from the air to the patient than from the patient to the air; that even in that case, it does not immediately operate, but that it requires time to break down the tone of the body, ere it can produce its effect."

Our limits will permit of only a simple reference to the yellow fever in New London, Conn., in 1798; Norfolk, Va., in 1801; Gallipolis, &c., not forgetting Philadelphia, in 1853. The instances of the two penitentiaries are sufficient to disprove the singular assertion of Dr. Hume about the "northern limit."

Dr. Hume makes another strange assertion. He says that

"It is the property of epidemics never to die in the place of their nativity. Yellow fever does die in our climate, for it is not renewed each successive summer, while at Havana it flourishes in perpetuity. If the fever is not a native of the West Indies, it is, at least, naturalized, but it cannot be said to be naturalized in Charleston. Our winter extinguishes it effectually."

It is well known that dysentery, influenza, &c., are often epidemic, and that they as often cease or "die." Bilious fever is endemic to the southern part of the United States, and when unusual or violent causes are superadded, a tremendous endemic ensues, as at Fort Gibson, in 1834, when we saw men as yellow after death as in yellow fever. Yellow fever certainly did "die" at the New York State Prison, at the Richmond Penitentiary, New London, Norfolk, Gallipolis, and Philadelphia, in 1853. There was malignant yellow fever at St. Augustine, Florida, in 1839, which *died*—the winter "extinguished it effectually"—and there was not another case in the town until 1841, when a malignant fever originated there from local causes, and many persons died. There is no dispute but the fever of this year (1841) originated there; there is no sort of apology for considering it as imported; and no one pretends to point out from whence it was imported; yet this fever died out, and there has not been a case since, thanks to a better system of police. There was yellow fever at Tampa, Florida, in 1839; and at Pascagoula, Miss., in 1848, originating there, which ran the same course.

Yellow fever is endemic in the cities of the low country on our southern coast, including Charleston; and "sporadic cases of fever of domestic origin" occur, as in the case of the drummer at the Citadel Academy, Capt. Cale's lady in 1852, Barkeley in 1853, &c.; but if other causes are added to the endemic condition, thus adding epidemic to endemic influences, malignant epidemic yellow fever will result.

Dr. Chalmers's opinion of the origin of the disease is declared when he speaks of the "narrow lanes and alleys, and more are daily laying out," and the "confined situations," which he predicted (truly) would "hereafter prove a nursery for diseases, not of the most tractable kind, when the town becomes large and is more closely built."

Dr. John Moultrie did not believe the disease to be contagious:—

"I cannot believe, with others, that this disease is propagated from one place to another by contagion, unless the atmosphere is in a fit state to produce it. In the year 1745, this disease prevailed to a very great extent in South Carolina, when it was very evident that contagion from some other place had no influence in producing it. For the first person seized with the disease that year was a sailor, who, having been drunk for two or three days in succession, afterwards fell ill of this fever, and the heat continuing excessive during the month, the fever spread widely throughout the city of Charleston. For when the weather is hot, there is danger lest an ardent fever should change into this disease of a more violent character; and I very little doubt that this is also occasioned by improper remedies and bad treatment."

Dr. Hume's Biographical Sketch of Dr. Moultrie is not very flattering, but let us see whether he was really, or not, an ignoramus. Dr. Ramsay says that he was one of the four who obtained a degree from a college "for the first ninety years which followed the settlement of South Carolina." "He was the first Carolinian who obtained the degree of Doctor of Medicine from the University of Edinburgh, when, in 1749, he defended a thesis, *De Febre Flava*." This thesis was translated into several modern languages. Dr. Moultrie had seen plenty of yellow fever in Charleston previous to writing this thesis; his language shows it, though Dr. Hume says that he "could scarcely have commenced the study of medicine in 1745, when the fever prevailed;" and that he did not do more than "any other young graduate would do who had to write a thesis on what he had scarcely seen." Let Dr. Moultrie speak for himself: "In the year 1745, this disease prevailed to a very great extent, &c." (See the foregoing passage.)

I believe that no one will deny the fact of my being present on Sullivan's Island during the epidemic yellow fever of 1852, and that I saw the disease, which I will describe in the language of Dr. Moultrie: "In the year 1852, this disease prevailed to a very great extent on Sullivan's Island, when it was very evident that contagion from some other place had no influence in producing it. The first person seized with the disease was a sergeant, who, &c." Will any candid person deny that Dr. Moultrie was present during the epidemic of 1745, and saw the disease, or that I was present and saw the fever during the epidemic of 1852?

Dr. Hume says: "It appears that Dr. Moultrie did not inquire from whence the sailor came, and it is possible that he was one of those persons, easily traced by Dr. Lining, as coming from some of the West India Islands"—and it is possible that he was not one of those persons, nor is it at all probable, for Dr. M. asserts positively that contagion had no influence in producing the disease, and we choose to believe his positive assertion in preference to Dr. Hume's conjecture; nor is it so very strange that a sailor who had been "drunk for two or three days in succession," at the same time the "heat continuing excessive," should be the first victim. Who knows that Dr. Moultrie did not "inquire from whence the sailor came?" Is it at all probable that Dr. M. made his statement without inquiry? Did Dr. Lining, or any contemporary, ever deny the truth of Dr. Moultrie's account? Dr. Hume's assertion is wholly gratuitous.

We do not think highly of the practice of disparaging a member of the profession because he does not think as we do. We might assert that Dr. Lining knew but little of the yellow fever in his limited practice, and by a slight perversion of a passage from Dr. Ramsay—"His fame was much more extensive than his practice"—might sustain ourselves; but will we attempt it?

In the second era of yellow fever, from 1792 to 1807, 1809, 1811, we have abundant evidence that it was not contagious, and that there was not a single instance of importation. How could it be imported and spread by contagion? for the fever ravaged Charleston in 1792, and Dr. Chisholm says the disease was not imported into the West Indies until the year after, 1793; and both he and Sir W. Pym have decided that only this imported Bulam fever is contagious, the original yellow fever of the West India Islands being, according to them, non-contagious. In this second period, there is not a single instance given of its being imported and spread by contagion, and Drs. Ramsay, Wilson, and Joseph Johnson, give testimony against its importation and contagiousness. Dr. Ramsay was in active life, and saw those epidemics, from 1762 to 1807 inclusive; and he unequivocally and publicly stated that the fever was not contagious, and no contemporary member of the profession controverted the opinion.

Dr. Hume says that "it is no honour to Charleston to be the parent of such a pestilence; it is no credit to her sons to endeavour to prove her to be." Is it a dishonour to be the "parent of such a pestilence," unless by such measures as were pursued in 1849 and 1852? making excavations and throwing up mud and refuse soil in all parts of the city? Is it no "credit to her sons to endeavour to prove" the truth? Must they give up the investigation of disease, record falsehoods, and suppress facts, for the special benefit of the few? Ramsay, Wilson, Johnson, Sbeent, and others, were not the men for this work; they had too much integrity: they recorded facts.

From 1699 to 1811, embracing the first two periods of yellow fever in Charleston, or 112 years, there is not a single well authenticated instance of imported and contagious yellow fever; if one occurred, let it be published, for it has not yet seen the light.